



Targeting Children in the Cereal Aisle: Promotional Techniques and Content Features on Ready-to-Eat Cereal Product Packaging

Randy Page, Katie Montgomery, Andrea Ponder, and Amanda Richard

ABSTRACT

Background: Despite recent and heightened concern about the marketing of food to children as a health issue, there is little previous research describing the product packaging characteristics of specific products intensely marketed to children. **Purpose:** In order to better understand food marketing tactics targeting children, the purpose of this study was to examine the promotional techniques and content features of ready-to-eat (RTE) cereal packages. **Methods:** A content analysis of 122 cereal product packages assessed front panel characteristics, premium offers, cross-promotions, activity features, characters and celebrities, web sites, and other content features. **Results:** It was observed that cereal packaging contains a wide variety of features likely to enhance the impulsivity of children to choose a particular product at the point-of-sale (e.g., children's characters, appears ready-to-eat, games and other fun activities). **Discussion:** The product packaging practices of food companies selling high sugar products, including presweetened cereals, is one area that needs serious examination in setting forth public policy measures surrounding the issue of food marketing to children. **Translation to Health Education Practice:** These findings are useful in the context of the planning of health education and public policy interventions which aim to reduce children's (and their parents') susceptibility to aggressive food marketing tactics.

BACKGROUND

The marketing of food to children and youth is an important health and nutrition issue, particularly in view of the fact that overweight and obesity rates have risen in children.¹ Food companies cleverly use product packaging to create visual appeal, attract children's attention, and build brand loyalty and as a marketing tool to entice consumers (parents and children) to buy a product at the point-of-sale.^{2,3} Product packaging is used as a vehicle to offer sales promotion techniques, such as premiums and cross-promotions, with popular TV and movie characters to enhance the marketing

of food products targeting children.⁴ Sales promotions are a significant part of the U.S. marketing environment with spending for sales promotions now exceeding that for advertising.⁵ In the U.S., \$3 billion is spent annually on packaging designed specifically for children.⁶ The products lining the shelves of supermarkets' frequently use children's favorite characters to market food directly to children and research has shown this to be particularly effective in assisting children's advertising slogan recall and ability to identify products.^{4,7} Product packaging marketing teaches children to recognize brands and "pester" their parents to buy.^{8,9}

Randy Page is a professor in the Department of Health Science, Brigham Young University, 221 Richards Building, Provo, UT 84604; E-mail: randy_page@byu.edu. Katie Montgomery is an undergraduate student in the Department of Health Science, Brigham Young University, 221 Richards Building, Provo, UT 84604. Andrea Ponder is an undergraduate student in the Department of Health Science, Brigham Young University, 221 Richards Building, Provo, UT 84604. Amanda Richard is a Master of Public Health student in the Department of Health Science, Brigham Young University, 221 Richards Building, Provo, UT 84604.



By two years of age, most children can recognize products in supermarkets and ask for them by name.¹ Household purchase decisions are increasingly being made together by parents and children, where parents as gatekeepers choose the product category and children choose the brand (e.g., “we need to buy some cereal, which one would you like?”).

Breakfast cereal is the third most popular item sold at grocery stores, following soft drinks and milk, and 40% of all breakfast consumed in the United States includes one of the 400 kinds of cereal available in the American marketplace.¹⁰ Ready-to-eat (RTE) cereals represent about 90%-95% of cereal sales and children represent the largest sector of the RTE cereal market.¹¹ The cereal market aisle is larger than any other section of most grocery stores, much of which is dominated by numerous varieties of pre-sweetened RTE cereals targeting children.² This area of the supermarket has tremendous aesthetic appeal for children displaying hundreds of brightly multicolored boxes/packages of cereal with cartoon-like characters and other visual features competing to get children’s attention.^{12, 13} The RTE cereal industry is highly concentrated, with the top four competitors, Kellogg, General Mills, Post, and Quaker making practically all of the branded RTE cereal in the U.S., and accounting for 84% of all RTE cereal sales.¹⁴ These four companies rarely compete with each other on the basis of price, but do compete through a variety of promotional strategies.¹⁵ These major cereal makers spend 10% to 15% of the value of their sales on advertising and marketing to differentiate brands, reduce product substitutability, and create demand segments in the market. Private-label cereals, also known as store brands, are not heavily promoted or advertised; they are sold at prices that are significantly less than those of branded cereals.^{15, 16}

Cereal companies tout the nutritional benefits of eating breakfast and eating cereal for breakfast.^{17, 18} Even presweetened cereals are promoted as nutritious because they are typically consumed with milk and are fortified with vitamins and minerals (e.g.,

calcium, iron, folic acid and B vitamins), despite high added sugar content. Presweetened cereals are a major source of added sugar in the diets of U.S. children^{19, 20} and consumption of excess calories from added sugars is a risk factor for overweight and obesity^{11, 20} and dental caries.²¹

PURPOSE

The purpose of this study was to examine cereal packages for promotional techniques and content features. We limited our analysis to cereal packages from the top four competitors in the national RTE cereal market (Kellogg, General Mills, Post, Quaker) and excluded private label brands because they do not typically include promotions and are not as heavily marketed as the top four cereal producers. This study represents the first systematic study in the health and nutrition literature to describe product packaging characteristics of a specific product intensely marketed to children and represents an important avenue of investigation for understanding food marketing tactics targeting children.

METHODS

Coding Instrument

An instrument was developed to record promotional strategies and content features of RTE cereal packages within seven categories. The categories were front panel characteristics, premium offers, cross-promotions, activity features, characters and celebrities, web sites, and other content features. These categories were based on the following reviews of food marketing and children: (1) *Food Marketing to Children and Youth: Threat or Opportunity?* (The Institute of Medicine); (2) *Review of the Research on the Effects of Food Promotion to Children* (Centre for Social Marketing, University of Strathclyde)²²; and (3) *Food Advertising and Marketing Directed at Children and Adolescents in the U.S.*²³ Research by Chapman et al.⁴ (conducted in Australian supermarkets) and the formative examination of cereal packages in U.S. supermarkets conducted by our research team also guided the development of this instrument.

The instrument was used to identify the presence (1) or absence (0) of specific promotion techniques and content features. For the purposes of this study, promotion was defined operationally in the same manner as that used by Chapman et al. and Hawkes as marketing and sales promotions used on food packaging designed to entice consumers to buy a product at the point-of-sale.

Front Panel Characteristics. The following front panel characteristics were assessed: enlarged image of the cereal; image of the cereal in a ready-to-eat fashion; image(s) of a toy or other merchandise that might attract kids; advertises sweetness; advertises fruity or fruit-flavored; advertises other flavors or ingredients that might appeal to children (e.g., chocolate, cinnamon, marshmallow); advertises something as free; and has a “lure.” A lure was operationally defined as references to the back of the package or other panels for more information or content (e.g., “see back for details,” “answers on back”).

Premium Offers. Premium offers that were assessed included: giveaways (package contains something free inside such as a toy, candy, or other merchandise); qualified giveaways (“free” offer requires qualifications that require purchasing the product – e.g., “fill out official order form inside this box,” “UPCs from specially market packages,” mail in proof of purchase to get merchandise); special purchase offers (offer to buy something); rebates or coupons; code (get the code inside to play game on product web site or for other premium offer); chance to win prize(s); qualified chance or eligibility for winning prize(s) (chance to win or eligibility to win contest/sweepstake requires purchasing the product); collectibles (a type of premium that consumers may desire to have as part of a greater collection of similar goods, (e.g., trading cards, action figures from a movie); limited time offers (includes the words “limited time offer” and/or any offer that lasts for a limited time such as games, activities, prizes, or other promotions that are advertised as available for a limited time); and fund-raising opportunities (fund-raising opportunities for a



school or other group which usually include selling opportunities).

Cross-Promotions. Cross-promotions assessed: movie tie-ins (show movie characters from a particular movie or offers merchandise, activities, or incentives associated with the movie); TV show or TV network tie-in (show TV characters from a particular TV show or offers merchandise, activities, or incentives associated with the show); toy or other merchandise tie-in (shows popular toy or has toy offers or other activities/incentives associated with the toy or other merchandise – e.g., music CDs, music players, cell phones); food product tie-in (shows other food products or has offers associated with another food product—not just another flavor or variety of the same product); and other tie-in (a tie-in with another commercial entity—e.g., NASCAR, NBA).

Activity Features. Activity features that were assessed were: solving activities (puzzles, word games, word searches, matching activities, finding activities, mazes, brainteasers, quizzes, riddles, etc.); finding answers to solving activities requiring product purchase (e.g., look inside back panel for answers); adventure activities (activities framed to be an adventure that takes on sort of an “adventure” journey such as a treasure hunt); stories or story completion activities; jokes; interesting facts or trivia; information or fantasy about the product is made; tricks or magic; tips for playing sports; recipes (using the featured product or ideas/tips for product consumption or use); and artwork activities (drawing, painting, coloring, etc.).

Characters/Celebrities. Cereal packages were assessed for the following types of characters/celebrities appearing anywhere on the package and on the front panel: animated (cartoon) characters; product ID characters; movie character or actor; TV character or actor; sports star; and other celebrity.

Web site. The web site category was used to determine whether the package: (1) identifies or directs to an associated product or company web site and gives the associated URL (“hey kids we are on the web at...”); (2) identifies another commercial Web site; and (3) identifies a noncommercial web site

of interest to kids.

Other. The other category was used to assess whether the package: identified association/sponsorship with a noncommercial organization(s); included explicit encouragement to exercise or be physically active (contains wording or text to this effect); included implicit exercise/physical activity (shows a character exercising, playing sports, or engaging in physical activity); contains a graphic(s) identifying the product as “healthy” or “nutritious”; contains explicit encouragement of good nutrition or healthy eating (contains text or wording); and whether sugar or sugar derivatives are listed as one of first three ingredients by weight.

In addition to the categories described above, the survey instrument required package analysts to identify the following information about the product under examination: brand name, package size in ounces, manufacturer, grams of sugar per serving, calories per serving, and percent of calories from sugar (calculated from grams of sugar per serving and calories per serving).

Selection of Cereal Packages

A total of 122 cereal packages were analyzed for the promotional strategies and content described above. These cereal packages represent all of the child-targeted RTE individual cereal packages stocked on the shelves of three separate supermarkets representing three different supermarket chains in a single Western U.S. community during a two-week time period in March 2007. Because different package sizes of the same product (e.g., 13 ounces, 17 ounces) can contain different promotional strategies or content, all package sizes found on shelves were included in the sample for analysis. Also, when two different versions of the same product and package size were found, both versions of the product package were included in the sample of cereal packages. Analysis was limited to products marketed by Kellogg, General Mills, Post, and Quaker, and did not include private-label brands. The criteria for determining or classifying a cereal product as “child-targeted” were adopted from Chapman et al.⁴ which identified a product for inclusion in the study if fun

and fantasy themes were used to make the product exciting and intriguing to children (e.g., animated or cartoon-like characters), featured popular children’s celebrities or characters from children’s television programs or movies, or contained premium offers that would appeal to children. Children were defined as being 12 years of age and under. Table 1 displays the products included in the analysis.

Analysis Procedures

Packages were analyzed by a single analyst. To establish inter-rater reliability, a random sample of 25 of the packages from the sample of cereal packages was also independently analyzed by another member of the research team. Inter-rater reliability statistics were calculated using Pram software (version 0.4.5 Skymeg Software, <http://www.geocities.com/skymegsoftware/pram.html>). The Cohen’s kappa statistic was 0.74 and the Holsti’s coefficient of reliability was 0.94, which reflected overall percent of agreement between the two analysts of 94%.

Frequencies and percentages of each promotional technique and content feature were calculated for all of the cereals combined and by manufacturer. Chi-square tests were used to identify differences in promotional techniques and content features between cereal manufacturers. Means and standard deviations were also calculated for grams of sugar per serving, calories per serving, and percent of calories from sugar (calculated from grams of sugar per serving and calories per serving). Analysis of variance tests were used to determine differences in these variables between manufacturers. Indices were calculated for the following promotion technique categories by summing the number of promotions present within the category: premium offers, cross-promotions, characters and celebrities, and activity features. The premium offers index ranged from 0 to 10 possible different premium offer promotions. The cross-promotions index ranged from 0 to 5 possible different cross-promotions. The characters and celebrities index ranged from 0 to 7 possible different characters and celebrities. The activity features index ranged from 0 to 12 possible dif-

**Table 1. Ready-to-Eat Cereals in the Analysis (N=122)**

Manufacturer/Brand Name	Package Sizes (ozs)	Manufacturer/Brand Name	Package Sizes (ozs)
Kellogg's		General Mills	
Apple Jacks	15, 19.1	Berry Burst Cheerios	11
Barbie Fairytopia	10.4	Berry Burst Cheerios Strawberry Banana	11
Berry Krispies	14.7	Boo Berry	10.25
Caramel Nut Crunch (2)	13.7	Cheerios	10, 15, 20
Cocoa Krispies	17.5	Chocolate Lucky Charms	14.25
Cocoa Krispies Choconilla	18	Cinnamon Toast Crunch	14, 20.25, 26
Corn Pops	19.5	Cocoa Puffs	13.75
Cran-Vanilla Crunch	13.2	Cookie Crisp	12.25, 18.25
Crispex	12	Count Chocula	10.75
Eggo Maple Syrup	13.5	Dora The Explorer (2)	11.5
Froot Loops	19.7, 25	Double Chocolate Cookie Crisp	13.7
Froot Loops 1/3 Less Sugar (2)	16.5	Eggo Cinnamon Toast	13.8
Frosted Flakes	17, 20, 23, 23.5, 31	Frakenberry	10.25
Frosted Krispies	12.5	Frosted Cheerios	20.25
Mini-Wheats Frosted Strawberry Delight (2)	16.3	Fruity Cheerios	11.5
Mini-Wheats Frosted Big Bite	16, 20.4	Golden Grahams	13, 18
Mini-Wheats Frosted Bite Size	19, 24	Honey Nut Cheerios	14, 20, 27
Mini-Wheats Frosted Maple and Brown Sugar	16.5	Honey Nut Chex	15.25
Mini-Wheats Frosted Vanilla Crème	16.7	Honey Nut Clusters	17.25
Honey Nut Nemo O's	14	Kix	9, 13
Honey Smacks	17.6	Little Einsteins	9.9
Hot Wheels	11.8	Lucky Charms	14, 20, 26
Marshmallow Froot Loops	12.6	Mickey Mouse Clubhouse Berry Crunch	11.6
Mini Swirlz Peanut Butter	15.9	Oatmeal Crisp	18
Raisin Bran Crunch	18.2	Princess Fairy Tale Flakes	11.4
Rice Krispies	10.5, 18	Reses Puffs	14.25, 20
Rice Krispies Treats	14.2	Trix	12, 17
Shrek Mutigrain Cereal with Marshmallows	11.8	Wheat Chex	16
Smorz	10.5	Wheaties	18, 20
Sponge Bob Square Pants	10.1	Yogurt Burst Cheerios Strawberry	12.9
Toasted Honey Crunch (2)	13.5	Yogurt Burst Cheerios Vanilla	12.9
Post		Quaker	
Baam-Baam Berry Pebbles	13	Cap'n Crunch	16, 22
Cinnamon Shredded Wheat	17	Chocolate Crunch	16
Cocoa Pubbles	13	Chocolatey Peanut Butter Crunch	13.1
Frosted Shredded Wheat	19	Cinnamon Life	15, 21
Fruity Pebbles	13, 17	Crunch Berries	15, 21
Golden Crisp	17	Life	15, 21
Honey Bunches of Oats	21	Life Chocolate Oat Crunch	13.3, 17.6
Honey Bunches of Oats Honey Roasted	16	Oatmeal Squares	24
Honey Bunches of Oats with Almonds	16, 21	Peanut Butter Crunch	14, 20.7
Honey Bunches of Oats with Cinnamon	14.5	Quaker Honey Graham O's	12
Honey Bunches of Oats with Strawberries	13		
Honey Comb	18.5		
Honey Nut Shredded Wheat	20		
Oreo O's	15.25		

*Note. Cereals identified with (2) indicate that two different versions of the particular cereal package were included in the analysis because they had different content features.



ferent activity features. A total promotions index was also calculated by summing the premium offers, cross-promotions, characters and celebrities, and activity features indices. Analysis of variance tests were also used to determine differences in these variables and the sugar and calorie content of the examined cereals between manufacturers. The significance level of all statistical tests was $p < .05$ and analysis was conducted with SAS version 9.1 for Windows.

RESULTS

The frequencies and percentages of cereal packages containing the assessed promotion techniques and content features for all total packages and by manufacturer are displayed in Table 2. Chi-square tests testing association with manufacturer were significant ($p < .05$, $df = 3$, $N = 122$) for the following techniques/features: image(s) of toy(s) or other merchandise likely to attract children ($\chi^2 = 24.5$); lure ($\chi^2 = 24.1$); advertises about grains ($\chi^2 = 21.7$); advertises something as “free” ($\chi^2 = 23.1$) animated character(s) anywhere on package ($\chi^2 = 7.8$); movie character/actor anywhere on package ($\chi^2 = 11.0$); TV character/actor anywhere on package ($\chi^2 = 8.4$); “real” kid(s) anywhere on package ($\chi^2 = 11.5$); answers requiring product purchase ($\chi^2 = 21.7$); adventure activity ($\chi^2 = 9.8$); stories or story-completion ($\chi^2 = 16.6$); interesting facts or trivia ($\chi^2 = 8.2$); giveaway ($\chi^2 = 7.8$); qualified giveaway; ($\chi^2 = 21.1$) chance to win ($\chi^2 = 8.4$); collectibles ($\chi^2 = 10.9$); limited time offers ($\chi^2 = 13.2$); fundraising opportunities ($\chi^2 = 117.8$); movie tie-in ($\chi^2 = 13.9$); TV show or network tie-in ($\chi^2 = 12.2$); toy or other merchandise tie-in ($\chi^2 = 32.3$); food product tie-in ($\chi^2 = 9.4$); other tie-in ($\chi^2 = 38.9$); identifies another commercial web site ($\chi^2 = 10.5$); identifies a noncommercial Web site of interest to kids ($\chi^2 = 21.7$); explicit encouragement to exercise or be physically active ($\chi^2 = 10.0$); and graphic identifying product as “healthy” or “nutritious” ($\chi^2 = 9.4$).

Table 3 displays the promotion indices and nutrition characteristics for the cereal packages examined in this study for total packages and according to manufacturer.

(ANOVA) tests of association between manufacturer and the cross-promotions [$F(3, 121) = 4.7$], premium offers [$F(3, 121) = 4.0$], and total promotions [$F(3, 121) = 4.7$] indices were significant ($p < .05$), but not for the activity index and the characters and celebrities index. The mean grams of sugar per serving across all the cereal packages examined was 10.7 (SD = 4.0), 130.2 (SD = 33.2) for calories per serving, and 33.8% (SD = 12.1) for percent of calories from sugar per serving. ANOVA tests of association between manufacturer and grams of sugar per serving [$F(3, 121) = 6.9$] and calories per serving [$F(3, 121) = 6.9$] were significant ($p < .05$), but not for percent of calories from sugar per serving.

Because multiple Chi-square tests (58) and ANOVA tests (8) were performed in this study, Tables 2 and 3 also identify which statistical tests remained significant after Bonferroni correction. This correction is extremely conservative ($p < .0086$ for the Chi-square tests) and protects against Type I errors when multiple comparisons are made. Because of the exploratory nature of this study, which we hope will lead to further research and hypothesis formulation, we were not overly concerned about Type I errors in any of these comparisons.

DISCUSSION

Product package design represents a \$100 billion industry that companies use to compete for customers.²⁴ Largely through visual communications using elements such as color, graphics, and product characters, product packaging is designed to grab consumers’ attention, introduce product contents and features, and encourage purchases during the experience of shopping.¹² Our findings regarding cereal packaging are consistent with Goodwin’s¹ assertion that food companies cleverly use product packaging to create visual appeal, attract children’s attention, and build brand loyalty. Overall, the cereal packages we analyzed contained a variety of promotion techniques and content features designed to accomplish these purposes. One means of creating visual appeal and attracting children’s attention that we

observed is the frequent use of children’s favorite characters on cereal packages. A high proportion of the packages displayed a visible animated (cartoon-like character) or other character popular with children. These characters were most frequently product ID characters, but also included movie and TV characters and less frequently sports stars. Most of the cereal packages included an enlarged image of the cereal, usually in a ready-to-eat fashion in a bowl, floating atop of milk, and often showing a spoon. Retail studies have shown that up to 85% of all consumer purchases are made on impulse, a fact that drives companies to invest large amounts of money in research and development in order to make strategic decisions about visual product package design.²⁵ Hill and Tilley² assert that product packaging is more likely to affect impulse purchases of children more than other age group and it is easy to see how these visual features (attractive children’s characters and a product that appears ready-to-eat) could enhance the impulsivity of children to choose a particular cereal product. The current study did little to assess the visual and design features of cereal packaging (e.g., color, graphics, photography, textual characteristics) and we suggest more research to understand the visual design features that appeal to children and effectively capture their attention. McNeal and Ji¹² have studied children’s visual memory of cereal brands and point out that children store memories in visual form. Thus, the impact of packaging is significant for children, perhaps more so than for adults, of the brand’s message and personality. These authors also explain that the selling role of packaging for children is enhanced through television advertising which prominently displays product packages. This serves to “deposit” and cue an image of the product in the minds of children so that it will prompt a visual memory of the product when the young consumer is in the presence of the packaging in the supermarket.

Chapman et al.⁴ suggest that food companies use product packaging as a vehicle to offer sales promotion techniques to enhance the marketing of these cereal products and

**Table 2. Types of Promotional Techniques and Content Features of Ready-To-Eat Cereal Packages (N = 122)**

	All N=122 % (f)	Kelloggs N=44 % (f)	General Mills N=46 % (f)	Post N=16 % (f)	Quaker N=16 % (f)
Front Panel Characteristics					
Enlarged image(s) of the cereal	92.6 (113)	90.9 (40)	89.1 (41)	100.0 (16)	100.0 (16)
Cereal image in ready-to-eat fashion	88.5 (108)	84.1 (37)	89.1 (41)	87.5 (14)	100.0 (16)
Image(s) of toy(s) or other merchandise likely to attract children	29.5 (36)	54.6 (24)	15.2 (7)	31.3 (5)	0.0 (0) ^{*†}
Lure	31.2 (38)	54.6 (24)	13.0 (6)	43.8 (7)	6.3 (1) ^{*†}
Advertised as "sweet," "sweetened," "sugary," "frosted," or similar	63.9 (78)	61.4 (27)	67.4 (31)	75.0 (12)	50.0 (8)
Advertised as fruity or fruit-flavored	22.9 (28)	27.3 (12)	21.7 (10)	25.0 (4)	12.5 (2)
Advertises other ingredients that might attract kids	58.2 (71)	52.3 (23)	60.9 (28)	68.8 (11)	56.3 (9)
Advertises about grains	81.2 (99)	61.4 (27)	97.8 (45)	75.0 (12)	93.8 (15) ^{*†}
Advertises something as "free"	17.2 (21)	38.6 (17)	2.2 (1)	12.5 (2)	6.3 (1) ^{*†}
Premium Offers					
Giveaway	7.4 (9)	15.9 (7)	2.2 (1)	6.3 (1)	0.0 (0) [*]
Qualified giveaway	18.0 (22)	38.6 (17)	2.2 (1)	12.5 (2)	12.5 (2) [*]
Special purchase offers	5.7 (7)	9.1 (4)	6.5 (3)	0.0 (0)	0.0 (0)
Rebates or coupons	4.9 (6)	11.4 (5)	2.2 (1)	0.0 (0)	0.0 (0)
Code	17.2 (21)	22.7 (10)	10.9 (5)	18.8 (3)	18.8 (3)
Chance to win	7.4 (9)	5.6 (2)	2.2 (1)	18.8 (3)	18.8 (3) [*]
Qualified chance or eligibility	0.8 (1)	0.0 (0)	0.0 (0)	0.0 (0)	6.3 (1)
Collectibles	18.0 (22)	31.8 (14)	15.2 (7)	6.3 (1)	0.0 (0) [*]
Limited time offers	13.1 (16)	27.3 (12)	2.2 (1)	6.3 (1)	12.5 (2) [*]
Fund-raising opportunities	36.9 (45)	0.0 (0)	97.8 (45)	0.0 (0)	0.0 (0) ^{*†}
Cross-Promotions					
Movie tie-in	18.9 (23)	34.1 (15)	8.7 (4)	25.0 (4)	0.0 (0) [*]
TV show or network tie-in	19.7 (24)	34.1 (15)	10.9 (5)	25.0 (5)	0.0 (0) [*]
Toy or other merchandise tie-in	25.4 (31)	54.6 (24)	4.4 (2)	12.5 (2)	18.8 (3) ^{*†}
Food product tie-in	25.4 (31)	22.7 (10)	19.6 (9)	18.8 (3)	56.3 (9) [*]
Other tie-in	70.5 (86)	61.4 (27)	97.8 (45)	68.8 (11)	18.8 (3) ^{*†}
Characters and Celebrities					
Animated character(s) – anywhere	63.1 (77)	72.7 (32)	67.4 (31)	37.5 (6)	50.0 (8) [*]
Animated character(s) – front panel	50.0 (61)	47.7 (21)	58.7 (27)	31.3 (5)	50.0 (8)
Product ID character(s) – anywhere	50.0 (61)	52.3 (23)	52.2 (24)	31.3 (5)	56.3 (9)
Product ID character(s) – front panel	49.2 (60)	50.0 (22)	52.2 (24)	31.3 (5)	56.3 (9)
Movie character/actor – anywhere	17.2 (21)	29.6 (13)	8.7 (4)	25.0 (4)	0.0 (0) [*]
Movie character/actor – front panel	13.9 (17)	20.5 (9)	8.7 (4)	25.0 (4)	0.0 (0)
TV character/actor – anywhere	18.9 (23)	29.6 (13)	13.0 (6)	25.0 (4)	0.0 (0) [*]


Table 2. Types of Promotional Techniques and Content Features of Ready-To-Eat Cereal Packages (N = 122) con't

	All N=122 % (f)	Kelloggs N=44 % (f)	General Mills N=46 % (f)	Post N=16 % (f)	Quaker N=16 % (f)
TV character/actor – front panel	10.7 (13)	9.1 (4)	10.9 (5)	25.0 (4)	0.0 (0)
Sports star – anywhere	3.3 (4)	2.3 (1)	4.4 (2)	6.3 (1)	0.0 (0)
Sports star – front panel	2.5 (3)	0.0 (0)	4.4 (2)	6.3 (1)	0.0 (0)
Other celebrity – anywhere	1.6 (2)	4.6 (2)	0.0 (0)	0.0 (0)	0.0 (0)
Other celebrity – front panel	0.8 (1)	2.3 (1)	0.0 (0)	0.0 (0)	0.0 (0)
“Real” kid(s) – anywhere	18.0 (22)	13.6 (6)	8.7 (4)	37.5 (6)	37.5 (6)*
Activity Features					
Solving activities	50.0 (61)	54.6 (24)	52.2 (24)	31.3 (5)	50.0 (8)
Answers requiring product purchase	18.9 (23)	38.6 (17)	4.4 (2)	25.0 (4)	0.0 (0)*†
Answers requiring Web site visit	4.9 (6)	0.0 (0)	8.7 (4)	12.5 (2)	0.0 (0)
Adventure activity	14.8 (18)	15.9 (7)	10.9 (5)	0.0 (0)	37.5 (6)*
Stories or story-completion	9.8 (12)	2.3 (1)	23.9 (11)	0.0 (0)	0.0 (0)*†
Jokes	6.6 (8)	6.8 (3)	4.4 (2)	6.3 (1)	12.5 (2)
Interesting facts or trivia	55.7 (68)	63.6 (28)	63.0 (29)	31.3 (5)	37.5 (6)*
Information or fantasy about the product's manufacture	4.9 (6)	2.3 (1)	6.5 (3)	0.0 (0)	12.5 (2)
Tricks or magic	4.1 (5)	2.3 (1)	6.5 (3)	0.0 (0)	6.3 (1)
Sports tips	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Recipes	8.2 (10)	13.6 (6)	6.5 (3)	0.0 (0)	6.3 (1)
Artwork, drawing, painting, coloring, etc	1.6 (2)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Web Sites					
Directs to product/company Web site	99.2 (121)	100.0 (44)	100.0 (46)	100.0 (16)	93.8 (15)
Directs to another commercial site	15.6 (19)	27.3 (12)	15.2 (7)	0.0 (0)	0.0 (0)*
Identifies noncommercial site	25.4 (31)	13.6 (6)	50.0 (23)	12.5 (2)	0.0 (0)*†
Other Content/Feature					
Association/sponsorship with noncommercial organization	2.5 (3)	4.6 (2)	2.2 (1)	0.0 (0)	0.0 (0)
Explicit encouragement to exercise or be physically active	21.3 (26)	36.4 (16)	13.0 (6)	18.8 (3)	6.3 (1)*
Implicit exercise/physical activity	24.6 (30)	27.3 (12)	28.3 (13)	6.3 (1)	25.0 (4)
Graphic identifying product as “healthy” or “nutritious”	86.9 (106)	81.8 (36)	95.7 (44)	93.8 (15)	68.8 (11)*
Explicit encouragement of good nutrition or healthy eating	43.4 (53)	40.9 (18)	54.4 (25)	18.8 (3)	43.8 (7)
Sugar or sugar derivatives listed as one of first three ingredients by weight	100.0 (122)	100.0 (44)	100.0 (16)	100.0 (46)	100.0 (16)

*Promotional techniques and content features identified differed significantly ($p < .05$, $df = 3$) on a Chi-square test to determine difference between the cereal manufactures.

† Technique or feature remained significant after Bonferroni correction ($p < .05/58 = .0086$) for multiple comparisons.

**Table 3. Nutrition Characteristics and Promotion Indices of Ready-to-Eat Cereals (N = 122)**

	All N=122 M (SD)	Kelloggs N=44 M (SD)	General Mills N=46 M (SD)	Post N=16 M (SD)	Quaker N=16 M (SD)
Nutrition Characteristics					
Mean grams of sugar per serving	10.7 (4.0)	12.8 (3.5)	9.7 (3.6)	9.8 (4.0)	9.3 (3.2)* †
Mean calories per serving	130.2 (33.2)	142.5 (37.8)	130.6 (30.4)	119.3 (24.6)	127.5 (35.1)*
Mean % of calories per serving from sugar	33.8 (12.1)	37.1 (10.7)	30.5 (12.7)	32.8 (12.4)	30.6 (13.1)
Promotion Indices					
Characters/celebrities index	1.7 (1.2)	2.0 (1.3)	1.5 (1.2)	1.6 (1.5)	1.4 (0.6)
Cross promotions index	1.6 (1.2)	2.1 (1.4)	1.4 (0.9)	1.5 (1.4)	0.9 (0.7)* †
Premium offers index	1.3 (1.2)	1.6 (1.5)	1.4 (0.7)	0.7 (0.9)	0.7 (1.5)* †
Activities index	1.8 (1.3)	2.0 (1.4)	1.9 (1.3)	1.1 (1.4)	1.6 (1.1)
Total promotions index	6.4 (3.6)	7.8 (3.9)	6.2 (2.5)	4.9 (4.2)	4.7 (3.3)* †

*Variables differed significantly ($p < .05$, $df = 3$) on a one-way Analysis of Variance (ANOVA) test to determine difference between the cereal manufactures.

† Variable remained significant after Bonferroni correction ($p < .05/8 = .00625$) for multiple comparisons.

we found this to be the case for cereal brands targeting children. The use of product identification characters, also known as branded spokescharacters (e.g., Tony the Tiger, Toucan Sam), movie and movie character tie-ins (e.g., Shrek, Spiderman, Harry Potter), toy tie-ins, celebrity endorsements, and premiums and collectibles (e.g., dolls, movie action figures, trading cards) are promotional strategies that television commercials have used to sell food to children.^{9,23} Promotional characters can become the living symbol of a product or brand and tend to be particularly effective with children in developing product preference.²⁶ Product ID characters/branded spokescharacters extend television advertising beyond the television commercials into a marketing mix that includes other forms of marketing including product packaging, Internet advertising, and sponsored events. Our results support other research that food companies have forged partnerships with movie and TV show producers, toy store companies, and other media in cross-selling promotions. Approximately one-fifth of the product packages had a cross-promotion or tie-in with a movie (18.9%) or TV show or

network (19.7%) and one-fifth with a toy or other merchandise (25.4%) or another food product (25.4%). There has been much written recently about the use of cross-selling and tie-in techniques by food companies to further the reach of brands by building brand awareness and brand loyalty for food products targeted to kids.^{9,23,27} Using characters from movies and TV shows blurs the lines between entertainment and advertising in the minds of children and there is some evidence that children's product choices may be influenced by popular cartoon characters.²⁷

A characteristic of 7.4% of the packages was the offer of a chance to win something, usually in the form of a contest or sweepstake. Shimp describes contests and sweepstakes as a popular form of marketing for a company because they are relatively inexpensive, simple to execute, and increase purchases of a product.²⁸ Contests and sweepstakes may be particularly appealing to young children because of a developmental perspective characterized by unrealistic expectations about their chances of winning. Disclaimers such as "many will enter and few

will win" are not likely to dissuade children from their expectations of winning. Also, 7.4% of the packages offered a giveaway by advertising that the package contains something free inside (toy, candy, or other merchandise) and 18.4% offered a "qualified giveaway," in which the offer of getting something "free" required purchasing the product so that qualifications such as filling out an order form (found inside or on the box), obtaining UPCs from specially marked packages, or mailing in proof of purchase to get the "free" object.

It was common for cereal boxes to offer activities to engage children. The most common was offering interesting facts or trivia (55.7%) and solving activities (50.0%), such as puzzles, word games, word searches, matching activities, finding activities, mazes, brainteasers, quizzes, and riddles. Acquisition of the answers to solving activities required a product purchase on 18.9% of the packages or a visit to a brand or company web site on 4.9% of the packages. As expected, the activities on packages were largely designed to promote the brand and increase brand awareness. A portion of the activities offered



on packages is content that may be construed as educational content but perhaps may be more accurately conceptualized as Moore's characterization of "advercation" in which educational information is embedded in an advertising message.²⁹

We used the term of "lure" to describe when on the front panel of a cereal box, consumers were referred to the back or other panels for more information (e.g., "see back for details," "solve puzzle on back," "continue the adventure/journey on back"). About one-third of the packages (31.2%) used this technique to engage children in features of the product package. Another "lure" that all but two of the cereal packages included was the directing of children to a brand or company web site (e.g., "hey kids we are on the web at ...," "for more fun go to ..."). These web sites, designed as cyber venues for marketing brands, are presented to children as entertainment sites ("virtual amusement parks") containing online games and activities with "cool" characters and attention-grabbing visual/sound effects. These sites blur distinctions between entertainment and advertising, lure children because of entertaining games and activities, and are replete with brand-related images and themes for the products being advertised.³⁰

We found that 21.3% of packages had explicit messages (wording or text) encouraging children to be physically active and 24.6% of packages had "implicit" messages about exercise/physical activity, which showed a character exercising, playing sports, or engaging in other physical activity. This is interesting in light of the suggestion that the food industry deflects attention from its possible role in the obesity epidemic by emphasizing physical activity in marketing messages.^{31, 32} Also, most of packages (86.9%) contained a graphic identifying the product as healthy or nutritious and 43.4% contained explicit encouragement of good nutrition or healthy eating.

It is no secret that the cereals targeting children lining the cereal aisle in supermarkets are predominately sweet in which sugar is the main or major ingredient. All of the

cereals in this study listed sugar or a sugar derivative as one of the first three ingredients by weight and on average the cereals contained 10.7 grams of sugar and 130 calories per serving and 33% of calories per serving were from sugar.

A major outcome of this study were findings showing differences in product packaging characteristics by manufacturers. Kellogg, who is the market leader in the overall cereal,¹⁴ included more total promotions and cross-promotions than the other manufacturers, and that Kellogg and General Mills included more premium offer than Post and Quaker. Along this line more "lures," giveaways, qualified giveaways, collectibles, movie tie-ins, TV show/network tie-ins, toy or other merchandise tie-ins, animated characters, TV characters, movie characters, other celebrities, interesting facts or trivia, images of toys on front panels, and explicit encouragements of exercise/physical activity were found on Kellogg cereals than on cereals produced by other manufacturers. Post and Quaker were more likely to include chances to win (contests/sweepstakes) and include pictures of "real" kids on packages. Quaker cereals were more likely than other manufacturers to include adventure activities. General Mills cereals were more likely to advertise about grains, and include graphics identifying products as healthy or nutritious, other tie-ins, and noncommercial web sites of interest to kids. Price¹⁴ comments that the four cereal manufacturers who dominate the breakfast cereal market rarely compete with each other on the basis of price, instead using "non-price strategies" such as advertising and promotions to differentiate similar cereals and try to create consumer loyalty to particular brands. On the other hand, private-label cereals, known as store brands are not heavily promoted or advertised, and compete by selling at prices significantly lower than the branded cereals. Our findings showing differentiation in type and amount of promotional techniques, and in general greater use of promotions by the market leader (Kellogg), is probably reflective of the fact that Kellogg spends more on advertising and marketing its cereals than

any other cereal maker.

A limitation of this study is that the packages examined only represents a given point in time, and may not necessarily represent the product packaging features of the cereals at other points in time or over a longer time period. It is likely that product packaging changes frequently and the various brands change promotion techniques and content features over time and changes might be frequent. Even though the cereals represented all of the cereals at three supermarkets and brands that are nationally distributed, it is unlikely that all the cereal products produced by the four manufactures were found at these three supermarkets. Further research should consider including cereals representing a wider geographic area and a greater number of supermarket chains. Another limitation is that the research was restricted to content analysis of the cereal packages. Further research should consider the use of child and parent subjects and measure such aspects as awareness, perceptions, and other influences related to product packaging promotion techniques and features. Marketing research studies frequently use focus groups to measure impacts of product packaging on target populations.^{2, 12} This research methodology has potential also for health and nutrition education studies designed for extending understanding of child marketing strategies, such as product packaging features from a health and nutrition education standpoint.

TRANSLATION TO HEALTH EDUCATION PRACTICE

Research addressing food product packaging is typically conducted by marketing specialists interested in broadening the effectiveness of packaging as a marketing tool and food scientists interested in ways of enhancing or preserving product quality through packaging. However, we found only one previous study in the health and nutrition literature focusing specifically on food product packaging.⁴ This is an important area of food advertising and marketing that appears to deserve greater research emphasis in helping health/nutrition educators better



understand influences on children's eating behavior across a larger range of food products. Research needs to extend beyond an examination of children's breakfast cereals to other product categories, particularly those associated with poor health outcomes such as obesity and Type 2 diabetes.

Product packaging influences are most prominently at the point-of-sale. Food purchases are often impulsive decisions, and children in particular are vulnerable to impulsivity when it comes to making food choice decisions. The promotional techniques and content features examined in this study likely exert most of their influence in the supermarket, but this influence also likely continues as the child interacts with the cereal box in other settings including while eating the cereal. Health and nutrition educators need to further examine how these features impact children and family purchase decisions. Because the consumption of high sugar cereals consumed in excess can potentially be harmful to a child's health, it is important to determine how educational strategies can intervene in ways that reduce these impacts through experimental and intervention studies. Research and intervention efforts also need to concentrate on parents, as well as children, and their roles in decision making about food purchases. Media literacy has potential in helping children and parents better understand the persuasive influences of product packaging used by food companies, and to be skeptical and think critically about these influences as strategies for reducing vulnerability to food marketing. However, developing effective media literacy interventions for young children is challenging, given that young children do not effectively comprehend the persuasive intent of marketing messages and that it is difficult for them to distinguish advertising content from informational content. Further, food marketers use strategies, such as favorite characters and cross-promotions with movies and toys, which are particularly appealing to children. Media literacy efforts for parents need to take into account the influence of "pester power" and "nag factor" that seem to be so effective when it comes

to making decisions about purchasing food for children, especially within the context of point-of-sale purchase decisions.

The recent Institute of Medicine report on food marketing in children gives scientific evidence of a link between food marketing and children's health, including childhood obesity.⁹ This report and others investigating aspects of food marketing and children, helps to remind us as health and nutrition professionals of the need to advocate for responsible marketing practices to support the health of children and help parents protect the health of children. This includes advocating for public policy measures that impact food and beverage marketing practices in ways that improve the potential for improving child health and fighting childhood obesity. The product packaging practices of food companies selling high sugar products is one area that needs serious examination in setting forth public policy measures surrounding the issue of food marketing to children.

REFERENCES

1. McGinnis JM, Gootman JA, Kraak VI, eds. Food marketing to children and youth: threat or opportunity? Washington, D.C.: National Academies Press, 2006.
2. Goodwin B. Packaging youth brands for shelf appeal that communicates across many levels. Package Design Magazine 2005; May. Available at <http://www.packagedesign-mag.com/bin/searchview.cgi?key=youth%20brands&p=issues/2005.05/designerscorner.shtml.com/cgi> Accessed on May 15, 2007.
3. Hill H, Tilley J. Packaging of children's breakfast cereal: Manufacturers vs. children. *British Food Journal*. 2002;104(9):766-777.
4. Chapman K, Nicholas P, Banovic D, Supramaniam R. The extent and nature of food promotion directed to children in Australian supermarkets. *Health Promotion International*. 2006;21:331-339.
5. Hawkes C. Marketing Food to Children: The Global Regulatory Environment. Geneva: World Health Organization, 2004.
6. Koplan JP, Liverman CT, Kraak VA, eds. Preventing Childhood Obesity: Health in the Balance. 2005. National Academies Press. Washington, D.C.: National Academies of Science, 2005.
7. Henry J. Kaiser Family Foundation. The role of media in childhood Obesity: Issue Brief. 2004; February.
8. Nestle M. Food marketing and childhood obesity: A matter of policy. *N Engl J Med*. 2006;354(24):2527-2529.
9. Gelprow R, Beharrell B. Healthy food products for children: Packaging and mothers' purchase decisions. *British Food Journal*. 1994;96(11):4-8.
10. Shoen G. Cereal is the no.1 choice on the American breakfast table. *The Sacramento Bee*. 2005;October 13. Available at <http://www.azcentral.com/home/food/articles/1013cereal1013.html>. Accessed May 5, 2007.
11. Webster K. Breakfast cereals. *Nutrition & Food Science*. 1995;5:35-41.
12. McNeal JU, Ji MF. Children's visual memory of packaging. *The Journal of Consumer Marketing*. 2003;20(5):400-427.
13. Crockett SJ, Sims LS. Environmental influences on children's eating. *J Nutr Educ*. 1995;27:235-249.
14. Price GK. Cereal sales soggy despite price cuts and reduced couponing. *Food Review*. 2000;23(2):21-28.
15. Price GK. Modeling coupon values for ready-to-eat breakfast cereals. *Agribusiness*. 2003;19(2):223-243.
16. Connor JM. Breakfast cereals: The extreme food industry. *Agribusiness*. 1999;15:247-259.
17. Albertson AM, Anderson G.H., Crockett SJ, Goebel M.T. Ready-to-eat cereal consumption: Its relationship with BMI and nutrient intake of children aged 4 to 12 years. *J Am Diet Assoc*. 2003;103:1613-1619.
18. Gibson S. Micronutrient intakes, micronutrient status and lipid profiles among young people consuming different amounts of breakfast cereals: Further analysis of data from the National Diet and Nutrition Survey of Young People aged 4-18 years. *Public Health Nutr*. 2003;6:815-820.
19. Guthrie JF, Morton JF. Food sources of added sweeteners in the diets of Americans. *J Am Diet Assoc*. 2000;100:43-8, 51.
20. Frary CD, Johnson RK, Wang MQ. Children and adolescents' choices of foods and beverages high in added sugars are associated with intakes of key nutrients and food groups. *J*



Adolesc Health. 2004;34(1):56-63.

21. Dietary Guidelines for Americans. 6th ed. Washington, DC: U.S. Department of Agriculture and Department of Health and Human Services; 2005.

22. Hastings GB, Stead M, McDermott L, Forsyth A, MacKintosh, AM, Rayner, M, Godfrey C, Caraher M, Angus K. Review of Research on the Effects of Food Promotion to Children. Glasgow, Scotland: University of Strathclyde, Centre for Social Marketing. 2003

23. Story M, French, S. Food advertising and marketing directed at children and adolescents in the US. *Int J Behav Nutr Phys Act.*, 2004;1(3). Open Access article available at <http://www.ijbnpa.org/content/1/1/3>. Accessed on June 12, 2007. (Electronic Journal).

24. Howard T. Color me popular: Marketers

shape up packaging. *USA Today* 2001;February 8:7B.

25. Mininni T. Nothing Says Brand Like the Package. *Brandchannel.com* 24 September 2004. Available at http://www.brandchannel.com/papers_review.asp?sp_id=435. Accessed on June 12, 2007.

26. Oglivy, D. Oglivy on Advertising, New York: Vintage Books,. 1983.

27. Center for Science in the Public Interest. Pestering Parents: How Food Companies Market Obesity to Children. Washington, D.C.: CSPI. 2003.

28. Shimp TA. Advertising, Promotion and Other Aspects of Integrated Marketing Communications, 7th ed., Mason, OH: Thomson South-Western 2007.

29. Moore ES. It's Child's Play: Advergaming

and the online marketing of food to children. Washington, D.C.: The Henry J. Kaiser Family Foundation. (2006, July).

30. Lewin A, Lindstrom L, Nestle M. Food industry promises to address childhood obesity: Preliminary evaluation. *J Public Health Policy*, 2006;27:327-348.

31. Dalmeny K, Hanna E, LOSTEIN T. Broadcasting Bad Health: Why Food Marketing to Children Needs to be Controlled. Washington, DC: The International Association of Consumer Food Organizations: July 2003.

32. Foltz SC, Goldberg JP, Economos C, Bell R, Meltzer R. Food advertising targeted at school-age children: A content analysis. *J Nutr Educ Behav.* 2006;38:244-248.

In Appreciation



I would like to say “thank you” and “good luck” to Teri L. Malo (left), who has served as editorial assistant to the *American Journal of Health Education* since I assumed the role of Editor-in-Chief in August 2005. Teri is moving on to work with the H. Lee Moffitt Cancer Center & Research Institute and to complete her doctoral dissertation at the University of South Florida College of Public Health. Among her other editorial duties, Teri reviewed more than 100 articles a year and assembled the *Journal's* annual indices. I also would like to welcome Jaime L. Myers (right), doctoral student at the University of South Florida College of Public Health, who recently received her MPH from the Rollins School of Public Health, Emory University. Jaime takes over the role of editorial assistant with this issue's publication.

—Robert J. McDermott, PhD, Editor